pared with S&E Ph.D.-holders employed by for-profit companies and in all sectors combined.

Although slower retirement for S&E Ph.D.-holders (particularly in academia) is significant and of some policy interest, it is important to recognize that this does not mean that academic or other Ph.D.-holders seldom retire. Indeed, figure 3-18 indicates that their retirement patterns are similar to those for bachelor's and master's degree-recipients; retirement for Ph.D.-holders is just delayed two or three years. Even the two-year transition rates for academia in text table 3-21 show more than 40 percent of those ages 66–70 leaving full-time employment.

Although many S&E degree-holders who formally "retire" from one job continue to work full or part time, this occurs most often among those younger than age 63. (See text table 3-22.) The drop in workforce participation among the "retired" is more pronounced for part-time work; i.e., older retired S&E workers are more likely to be working full time than part time. Retired Ph.D. scientists and engineers follow this pattern, albeit with somewhat greater rates of postretirement employment than shown by bachelor's and master's degree-recipients. See sidebar, "Are Information Technology Careers Difficult for Older Workers?"

Projected Demand for S&E Workers

During the 2000–2010 period, employment in S&E occupations is expected to increase about three times faster than the rate for all occupations. (See text table 3-23.) Although the economy as a whole is expected to provide approximately 15 percent more jobs over this decade, employment opportunities for S&E jobs are expected to increase by about 47 percent (about 2.2 million jobs).

Approximately 86 percent of the increase in S&E jobs will likely occur in computer-related occupations. Overall employment in these occupations across all industries is expected to increase by about 82 percent over the 2000–2010 decade, adding almost 1.9 million new jobs. The number of jobs for computer software engineers is expected to increase from 697,000 to 1.4 million, and employment for computer systems analysts is expected to grow from 431,000 to 689,000 jobs.

Within engineering, environmental engineering is projected to have the biggest relative employment gains, increasing by 14,000 jobs, or about 27 percent. Computer hardware engineering is also expected to experience above-average employment gains, growing by 25 percent. Employment for all engineering occupations is expected to increase by less than 10 percent.

Job opportunities in life science occupations are projected to grow by almost 18 percent (33,000 new jobs) over the 2000–2010 period; at 27 percent (10,000 new jobs), medical science occupations are expected to experience the largest growth. Employment in physical science occupations is expected to increase by about 18 percent (from 239,000 to 283,000 jobs); slightly less than one-half of these projected job gains are for environmental scientists (21,000 new jobs).

Social science occupations are expected to experience above-average growth (20 percent) over the decade largely due to the employment increases anticipated for market and survey researchers (27 percent, or 30,000 new jobs). Demand for psychologists is also projected to be favorable (18 percent, or 33,000 new jobs).

Text table 3-21.
Employed, 1997 S&E doctorate holders leaving full-time employment by 1999: by sector of employment in 1997
(Percentages)

Age in 1997 (years)	All sectors	Four-year schools	For-profit company	Government
51–55	5.6	4.1	6.4	3.9
56–60	9.5	5.1	17.3	5.8
61–65	21.6	18.3	33.5	19.8
66–70	45.1	43.2	38.4	64.7
71–73	32.6	29.7	—	—

— = Insufficient sample size for estimate

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997 and 1999.

Science & Engineering Indicators – 2002

Text table 3-22.
S&E-degreed individuals who have "retired" but continue to work: 1999
(Percentages of those retired)

	Highest degree					
	Bachelor's		Master's		Ph.D.	
Age (years)	Part time	Full time	Part time	Full time	Part time	Full time
50–55	12.1	52.9	12.5	66.8	16.9	57.0
56–62	14.4	27.8	21.3	36.9	17.0	38.7
63–70	14.5	8.3	17.1	11.9	19.3	11.6
71–75	8.1	8.4	11.9	3.3	15.2	6.1

NOTE: Retired means those who said they had ever retired from any job.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Science & Engineering Indicators – 2002

The Global S&E Workforce and the United States

"There is no national science just as there is no national multiplication table." —Anton Chekov (1860–1904)

Science is a global enterprise. The common laws of nature cross political boundaries, and the international movement of people and knowledge made science global long before "globalization" became a label for the increasing interconnections among the world's economies. The United States (and other countries as well) gains from new knowledge discovered abroad